CLAIM AMENDMENTS

Please cancel claims 1-74 and substitute the following claims:

75. (new): A component designed to serve as an electrolyte in a fuel cell, which component comprises

a metal or metal hydride support, wherein

one or both faces of said support is coated with an electronically-insulating proton-conducting (EIPC) coating, which coating is of an inorganic or composite non-liquid material, said coating having a thickness such that the area-specific resistance (ASR) for protons is in the range of 0.01-100 $\Omega.cm^2$ at at least one temperature between 175°C and 550°C.

76. (new): The component of claim 75, wherein the metal or the metal contained in the metal hydride is palladium, titanium, silver, copper, vanadium, lanthanum, nickel, iron, chromium or alloys thereof.

77. (new): The component of claim 76, wherein the metal or metal in the metal hydride is selected from the group consisting of Pd, PdAg, PdCu, Ti, $LaNi_5$, TiFe and CrV_2, V/Ni/Ti, V/Ni and V/Ti.

78. (new): The component of claim 75, wherein the EIPC coating is selected from the group consisting of:

mesoporous zirconium phosphate pyrophosphate, $Zr(P_2O_7)_{0.81}$;

a superprotonic water non-stoichiometric phase of $M_zH_y(AO_4)_w.xH_2O$;

$Ba_3Ca_{1.18}Nb_{1.82}O_{8.73}$-$H_2O$ (BCN 18);

$Cs_5H_3(SO_4)_4.0.5H_2O$;

an organic-inorganic hybrid (ICS-PPG), composed of 3-isocyanatopropyl-triethoxysilane (ICS) and poly(propylene glycol)bis-(2-amino-propyl ether) (2-APPG), mixed with peroxopolytungstic acid (W-PTA), (W-PTA/ICS-PPG);

a hydrate of $SnCl_2$;

silver iodide tetratungstate $Ag_{26}I_{18}W_4O_{16}$;

$Cs_{1-x}(NH_4)_xH_2PO_4$, $Cs_{1-x}(ND_4)_xD_2PO_4$, or $K_{1-x}(NH_4)_xH_2PO_4$;

KH_2PO_4;

tetraammonium dihydrogen triselenate, $(NH_4)_4H_2(SeO_4)_3$;

$CsDSO_4$;

CsH_2PO_4 (CDP);

$Sr[Zr_{0.9}Y_{0.1}]O_{3-\delta}$ (SZYO);

a silica-polyphosphate composite containing ammonium ions;

$La_{0.9}Sr_{0.1}Sc_{0.9}Mg_{0.1}O_3$ (LSSM); and

$BaCe_{0.9-x}Zr_xM_{0.1}O_{3-\delta}$ where M is Gd or Nd and x = 0 to 0.4.

79. (new): The component of claim 75, wherein the EIPC coating consists of

$Ba_3Ca_{1.18}Nb_{1.82}O_{8.73}$-$H_2O$ (BCN 18);

CsH_2PO_4 (CDP);

$Sr[Zr_{0.9}Y_{0.1}]O_{3-\delta}$ (SZYO);

polyphosphate composite containing19.96 wt% NH_4^+, 29.3 wt% P, 1.51 wt% Si;

$La_{0.9}Sr_{0.1}Sc_{0.9}Mg_{0.1}O_3$ (LSSM); or

$BaCe_{0.9-x}Zr_xM_{0.1}O_{3-\delta}$ where M is Gd or Nd and x = 0 to 0.4 (BCZMO).

80. (new): The component of claim 75, wherein the thickness of the metal or metal hydride is 5-1,000 μm.

81. (new): The component of claim 80, wherein the thickness of the metal or metal hydride is 10-200 μm.

82. (new): The component of claim 75, wherein the ASR for protons at at least one temperature between 175°C and 550°C is substantially equivalent to that of Nafion® 117 at 80°C.

83. (new): A method to prepare a component designed to serve as an electrolyte in a fuel cell, wherein said fuel cell is operable at at least one temperature in the range of 175°C-550°C, which method comprises depositing on a metal foil the EIPC coating of claim 75.

84. (new): A component designed to serve as an electrolyte in a fuel cell, which component comprises

a metal or metal hydride support, wherein

one or both faces of said support is coated with an electronically-insulating proton-conducting (EIPC) coating, which coating is of an inorganic or composite non-liquid material, said coating having a thickness such that the conductivity for protons as a function of temperature is in the gap shown in Figure 1.

85. (new): The component of claim 84, wherein the metal or the metal contained in the metal hydride is palladium, titanium, silver, copper, vanadium, lanthanum, nickel, iron, chromium or alloys thereof.

86. (new): The component of claim 85, wherein the metal or metal in the metal hydride is selected from the group consisting of Pd, PdAg, PdCu, Ti, $LaNi_5$, TiFe and CrV_2, V/Ni/Ti, V/Ni and V/Ti.

87. (new): The component of claim 84, wherein the EIPC coating is selected from the group consisting of:

mesoporous zirconium phosphate pyrophosphate, $Zr(P_2O_7)_{0.81}$;

a superprotonic water non-stoichiometric phase of $M_zH_y(AO_4)_w.xH_2O$;

$Ba_3Ca_{1.18}Nb_{1.82}O_{8.73}$-$H_2O$ (BCN 18);

$Cs_5H_3(SO_4)_4.0.5H_2O$;

an organic-inorganic hybrid (ICS-PPG), composed of 3-isocyanatopropyl-triethoxysilane (ICS) and poly(propylene glycol)bis-(2-amino-propyl ether) (2-APPG), mixed with peroxopolytungstic acid (W-PTA), (W-PTA/ICS-PPG);

a hydrate of $SnCl_2$;

silver iodide tetratungstate $Ag_{26}I_{18}W_4O_{16}$;

$Cs_{1-x}(NH_4)_xH_2PO_4$, $Cs_{1-x}(ND_4)_xD_2PO_4$, or $K_{1-x}(NH_4)_xH_2PO_4$;

KH_2PO_4;

tetraammonium dihydrogen triselenate, $(NH_4)_4H_2(SeO_4)_3$;

$CsDSO_4$;

CsH_2PO_4 (CDP);

$Sr[Zr_{0.9}Y_{0.1}]O_{3-\delta}$ (SZYO);

a silica-polyphosphate composite containing ammonium ions;

$La_{0.9}Sr_{0.1}Sc_{0.9}Mg_{0.1}O_3$ (LSSM); and

$BaCe_{0.9-x}Zr_xM_{0.1}O_{3-\delta}$ where M is Gd or Nd and x = 0 to 0.4.

88. (new): The component of claim 84, wherein the EIPC coating consists of

$Ba_3Ca_{1.18}Nb_{1.82}O_{8.73}$-$H_2O$ (BCN 18);

CsH_2PO_4 (CDP);

$Sr[Zr_{0.9}Y_{0.1}]O_{3-\delta}$ (SZYO);

polyphosphate composite containing19.96 wt% NH_4^+, 29.3 wt% P, 1.51 wt% Si;

$La_{0.9}Sr_{0.1}Sc_{0.9}Mg_{0.1}O_3$ (LSSM); or

$BaCe_{0.9-x}Zr_xM_{0.1}O_{3-\delta}$ where M is Gd or Nd and x = 0 to 0.4 (BCZMO).

89. (new): The component of claim 84, wherein the thickness of the metal or metal hydride is 5-1,000 μm.

90. (new): The component of claim 89, wherein the thickness of the metal or metal hydride is 10-200 μm.

91. (new): The component of claim 84, wherein the ASR for protons at at least one temperature between 175°C and 550°C is substantially equivalent to that of Nafion® 117 at 80°C.

92. (new): A method to prepare a component designed to serve as an electrolyte in a fuel cell, wherein said fuel cell is operable at at least one temperature in the range of 175°C-550°C, which method comprises depositing on a metal foil the EIPC coating of claim 84.